

Serial No.:10/583,069

PD030126

Remarks

In view of the above amendments to the claims and the following discussion, the applicants submit that none of the claims now pending in the application are anticipated under the provisions of 35 U. S. C. § 102. Furthermore, the applicants also submit that the claims now pending in the application satisfy the requirements of 35 U. S. C. § 112. Thus, the applicants believe that all of these claims are in allowable form.

OBJECTIONS

A. Drawings

The Examiner indicates that none of the drawings show a "current mirror". The applicant respectfully disagrees as a current mirror is shown in Fig. 5, as is disclosed in the specification. However, to make it easier to identify the current mirror in Fig. 5, elements belonging to the current mirror have been surrounded by a dashed line and the formed block has been designated as "Current Mirror".

In view of this amendment to the drawings, the basis for the Examiner's objection thereto has been removed. Therefore, it is respectfully requested that the Examiner's objection to the drawings be withdrawn.

B. Claims

The Examiner objects to claim 1 because of informalities. In particular, the Examiner indicates that in claim 1, at line 2, the term "the laser" should be "a laser" and at line 7, the term "a laser" should be "the laser". Claim 1 has been amended at line 2, to replace the phrase "the laser" with "a laser" and at line 7, to replace the phrase "a laser" with "the laser".

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In view of the above amendment to claim 1, the basis for the Examiner's objection to claim 1 has been removed. Therefore, it is respectfully requested that this objection be withdrawn.

REJECTIONS

A. 35 U. S. C. § 112, second paragraph

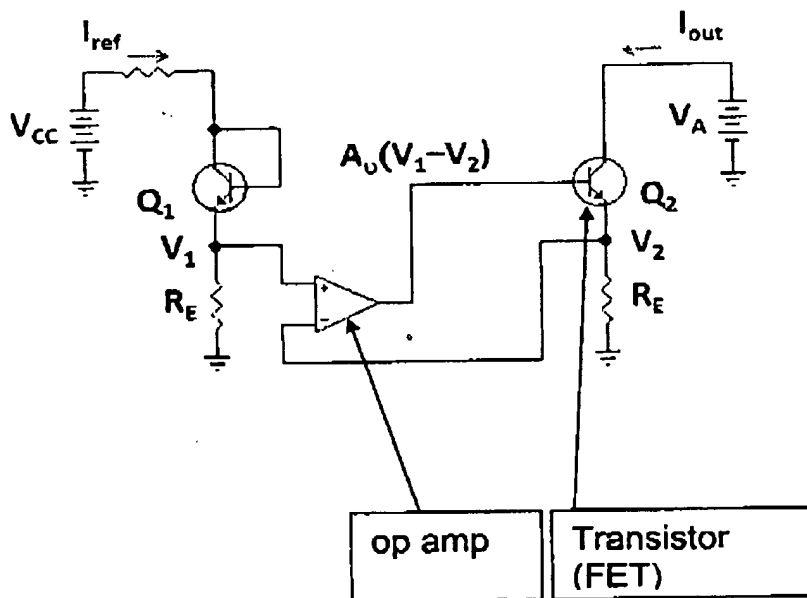
1. Claim 3

Claim 3 stands rejected under 35 U. S. C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner indicates at page 3 of the Office Action that: "It is unclear how an op amp driving a single FET can be a current mirror in the conventional sense (in the specification). (see [http://en.wikipedia.org/wiki/Current mirror](http://en.wikipedia.org/wiki/Current_mirror))".

For ease of discussion, reproduced below are the current mirrors with an op amp driving a single FET (transistor) that are illustrated in Fig. 3 and Fig. 4 at [http://en.wikipedia.org/wiki/Current mirror](http://en.wikipedia.org/wiki/Current_mirror).

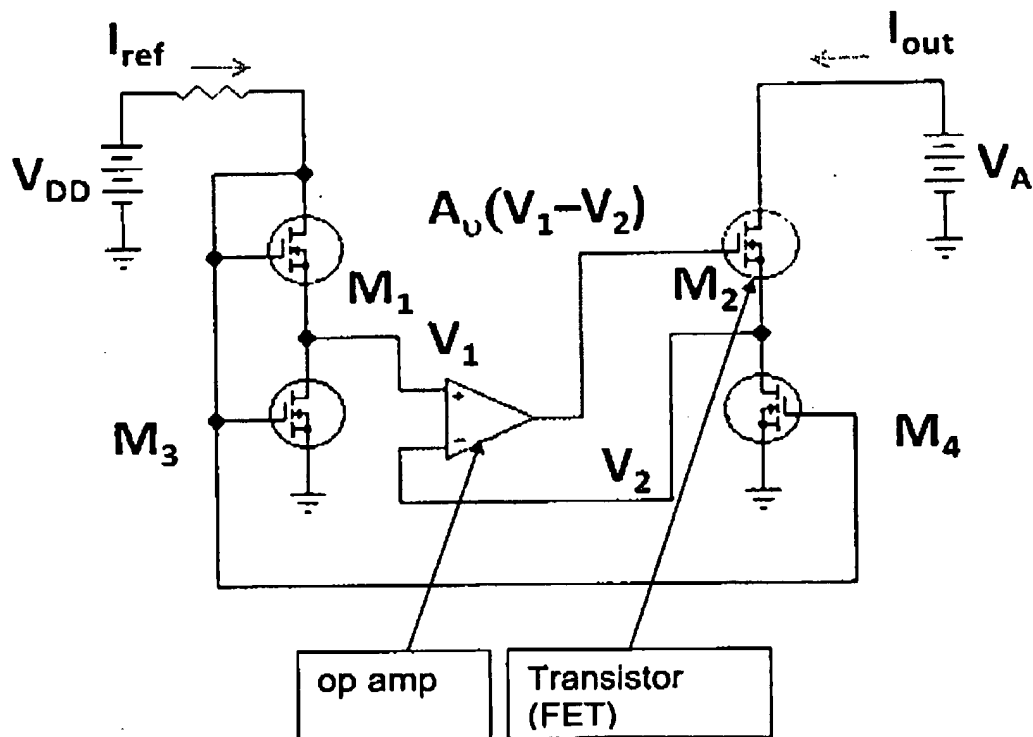
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Fig. 3 of [http://en.wikipedia.org/wiki/Current mirror](http://en.wikipedia.org/wiki/Current_mirror)

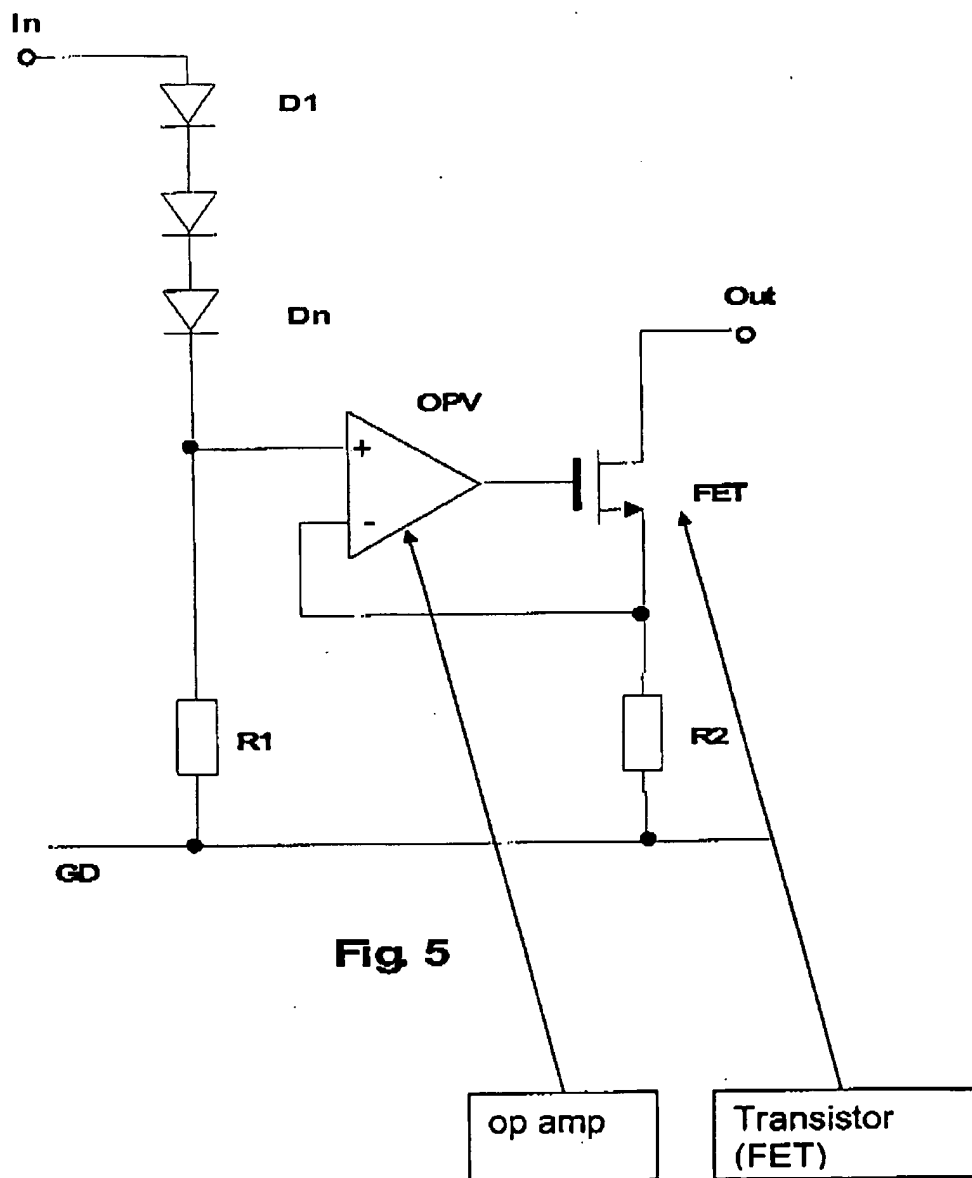
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Fig.4 of http://en.wikipedia.org/wiki/Current_mirror

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Fig. 5 of the present application

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Wikipedia states concerning a "current mirror" that "A current mirror is a circuit designed to copy a current through one active device by controlling the current in another active device of a circuit," Furthermore, e.g. <http://www.falstad.com/circuit/e-mirror.html> states more precisely and illustrates and reads more precisely: *"a current mirror, a device that uses the current in one half of the circuit to control the current flow in the other half."*

Such a device, which uses the current in one half of the circuit to control the current flow in the other half is shown in Fig. 5 and by an amendment to Fig. 5 now is also clearly designated in Fig. 5, so that Examiner's statements that a current mirror is not shown in drawings are traversed.

Furthermore, applicant's specification reads at page 10, lines 13 – 17: "In Figure 5, provision is made of a series circuit of diodes D1...Dn that is connected upstream of the current mirror. The current mirror is formed for example with an operational amplifier OPV and a field-effect transistor FET,...." as it is now also designated in amended Fig. 5, so that said amendment in Fig. 5 is also supported by the description.

Claim 3 is dependent on claim 2 and discloses details of an embodiment of the current mirror disclosed in claim 2. Claim 3 reads:

"The compatible optical scanner as claimed in claim 2, wherein the current mirror of the optical scanner that is provided for regulating the light power of the laser is an operational amplifier driving a field-effect transistor, the noninverting input of which amplifier is connected to a line carrying reference-ground potential via a first resistor, the inverting input of the operational amplifier and the source of the field-effect transistor being connected to said line via a second resistor, and the drain of the field-effect transistor is an output provided for regulating the light power of the laser."

This means that claim 3 discloses the means of an embodiment constituting a current mirror, which is *a device that uses the current in one half of the circuit to*

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control the current flow in the other half as is shown in Fig. 5 of the present application.

A current mirror is well known to a person skilled in the art and e.g. disclosed at [http://en.wikipedia.org/wiki/Current mirror](http://en.wikipedia.org/wiki/Current_mirror) cited by the Examiner or illustrated at <http://www.falstad.com/circuit/e-mirror.html> as shown above. In view of the above, it is clear that *the current in one half of the circuit* is measured by the op amp and *the current flow in the other half* is controlled by the FET driven by the op amp, which is typical for a current mirror.

In view of the amendment to Fig. 5, the basis for the Examiner's rejection of claim 3 has been removed. Therefore, it is respectfully requested that the Examiner's rejection of claim 3 pursuant to 35 U. S. C. § 112, second paragraph, be withdrawn.

2. Claims 2-10

Claims 2-10 stand rejected under 35 U. S. C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In particular, the Examiner indicates that there is insufficient antecedent basis recited for the term "a laser" in the claims. Claims 2-10 have been amended to provide proper antecedent basis for the term "a laser" by rewriting it as "the laser".

In view of the amendments to claims 2-10, the basis for the Examiner's rejection thereof has been removed. Therefore, it is respectfully requested that the Examiner's rejection of claims 2-10 pursuant to 35 U. S. C. § 112, second paragraph, be withdrawn.

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B. 35 U. S. C. § 102

Claim 1 stands rejected under 35 U.S.C. 102(b) as being anticipated by Tsuchiya et al. (U.S. Patent 5,179,565 issued January 12, 1993). The applicants submit that this claim is not anticipated by this reference.

Tsuchiya et al. discloses a typical optical scanner in which a bias current of the laser is modulated for recording or reproduction apparatuses of optical recording media, however, Tsuchiya et al. neither discloses nor gives a hint to

"a laser modulator that at least partly or completely switches the laser current and

a means for simulating the input characteristic curve of the laser at an input of said laser modulator."

The background of the present invention reads: "In order to reduce the noise resulting from light coupled into the laser, the laser diodes are modulated, by means of a modulator, with a high-frequency signal that switches the laser on and off. In principle, two different methods have been disclosed for this purpose. Whereas in the past the bias current of the lasers has been modulated, so that the laser current has been increased and reduced with the modulation, in the meantime optical scanners that at least partly or completely directly switch the laser current have also been disclosed. Modulators of this type are referred to as improved laser modulators since they have a lower power loss and a range of further advantages."

This means that there is a well known difference between the conventional laser modulator working with a bias current and newer ones that at least partly or completely directly switch the laser current as illustrated in following sheet.

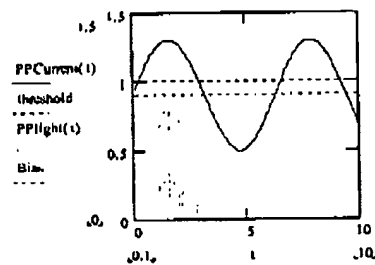
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The difference (2)

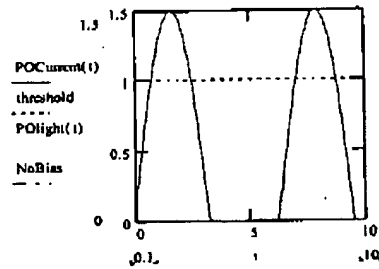
**Conventional
Modulator**



Duty ~ 50%

TECHNICOLOR

**Push-only
Modulator**

Duty ~ 20-30%
no BIAS

RED/1 THOMSON

Tsuchiya et al. discloses a conventional laser modulator using a bias current as designated by "BIAS CURRENT" in cited Fig. 1 and Fig. 2. Tsuchiya et al. reads in column 6, lines 40 - 68: "FIG. 1 illustrates ... A laser diode (LD) 38 is first brought to pulsed oscillation by previously supplying a bias current thereto ... An output from the photodetector 42, ... is used to permit a stabilized current modulator circuit 44 (laser modulator 44 cited by the Examiner) to modulate the bias current of the LD 38 ... and control the bias current such that the' intensity of ... The foregoing stabilized current modulator circuit 44 is to compare the output from the optical detector 42 and a level signal, and includes, as shown in FIG. 2, a light intensity signal comparator circuit 44A for making constant a DC component such as a temperature change and temporal drift etc., ...". Consequently, the Examiner's statement that "Fig.1 and Fig. 2 show ... a laser modulator 44 that at least partly or completely switches the laser current and a means for simulating (LEVEL input) the input

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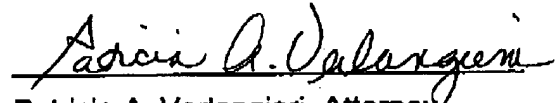
characteristic curve of a laser at an input of said laser modulator" is respectfully traversed.

CONCLUSION

Thus, the applicants submit that none of the claims, presently in the application, are anticipated under the provisions of 35 U. S. C. § 102. Furthermore, the applicants also submit that the claims now pending in the application satisfy all of the requirements of 35 U. S. C. § 112. Consequently, the applicants believe that all of the claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

If, however, the Examiner believes that there are any unresolved issues requiring continuation of the adverse final action in any of the claims now pending in the application, it is requested that the Examiner telephone Ms. Patricia A. Verlangieri, at (609) 734-6867, so that appropriate arrangements can be made for resolving such issues as expeditiously as possible.

Respectfully submitted,



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